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PROBLEMS FOR SOLUTION.

ALGEBRA.

139. Proposed by JOHN M. COLAW, A. M., Monterey, Va.

Solve neatly $\sqrt[4]{(m-x)}=\sqrt[4]{n}-\sqrt[4]{x}$.

140. Proposed by G. B. M. ZERR, A. M., Ph. D., Professor of Chemistry and Physics, The Temple College, Philadelphia, Pa.

A man pays monthly $24.50 for 8 years for a loan of $1250. What is the rate %?

142. Proposed by JOSEPH V. COLLINS, Ph. D., Professor of Mathematics, State Normal School, Stevens Point, Wis.

How many teams of two horses each can a livery stable man send out who has 10 horses, assuming (1) that we consider the way the team is hitched and (2) that we do not.

Suppose he has 8 horses; 10 horses. Suppose he has 7 buggies, then how many different rigs can he send out, assuming that he has 10 horses, and counting both one and two horse rigs?

[We will publish a series of problems of this character in future numbers of the MONTHLY.]

⁂ Solutions of these problems should be sent to J. M. Colaw not later than August 10.

GEOMETRY.

169. Proposed by S. F. NORRIS, Professor of Astronomy and Mathematics, Baltimore City College, Baltimore, Md.

Theorem. Two quadrilaterals having three sides of the one equal to the three corresponding sides of the other, each to each, and the two corresponding angles adjacent to the unknown sides equal, each to each, are equal figures. [From *Olney's Geometry*, Section VIII, Proposition XIV.]

1. Required the proof. 2. Is this proposition found in any other text-book of Geometry ?

170. Proposed by CHARLES C. CROSS, Whaleyville, Va.

If p, q, r are the distances of the orthocenter from the sides, prove that

$$4\left(\frac{a}{p}+\frac{b}{q}+\frac{c}{r}\right)=\left(\frac{a}{p}+\frac{b}{q}-\frac{c}{r}\right)\left(\frac{b}{q}+\frac{c}{r}-\frac{a}{p}\right)\left(\frac{c}{r}+\frac{a}{p}-\frac{b}{q}\right).$$

171. Proposed by J. SCHEFFER, A. M., Hagerstown, Md.

Find the nearest distance of the parabola $y^2=16x$ and the ellipse $16x^2+9y^2-160x-144y+832=0$.

⁂ Solutions of these problems should be sent to B. F. Finkel not later than August 10.

CALCULUS.

133. Proposed by NELSON L. RORAY, South Jersey Institute, Bridgeton, N. J.

Integrate $\int\frac{\sqrt{(1+y)}}{1+y^2}dy$.